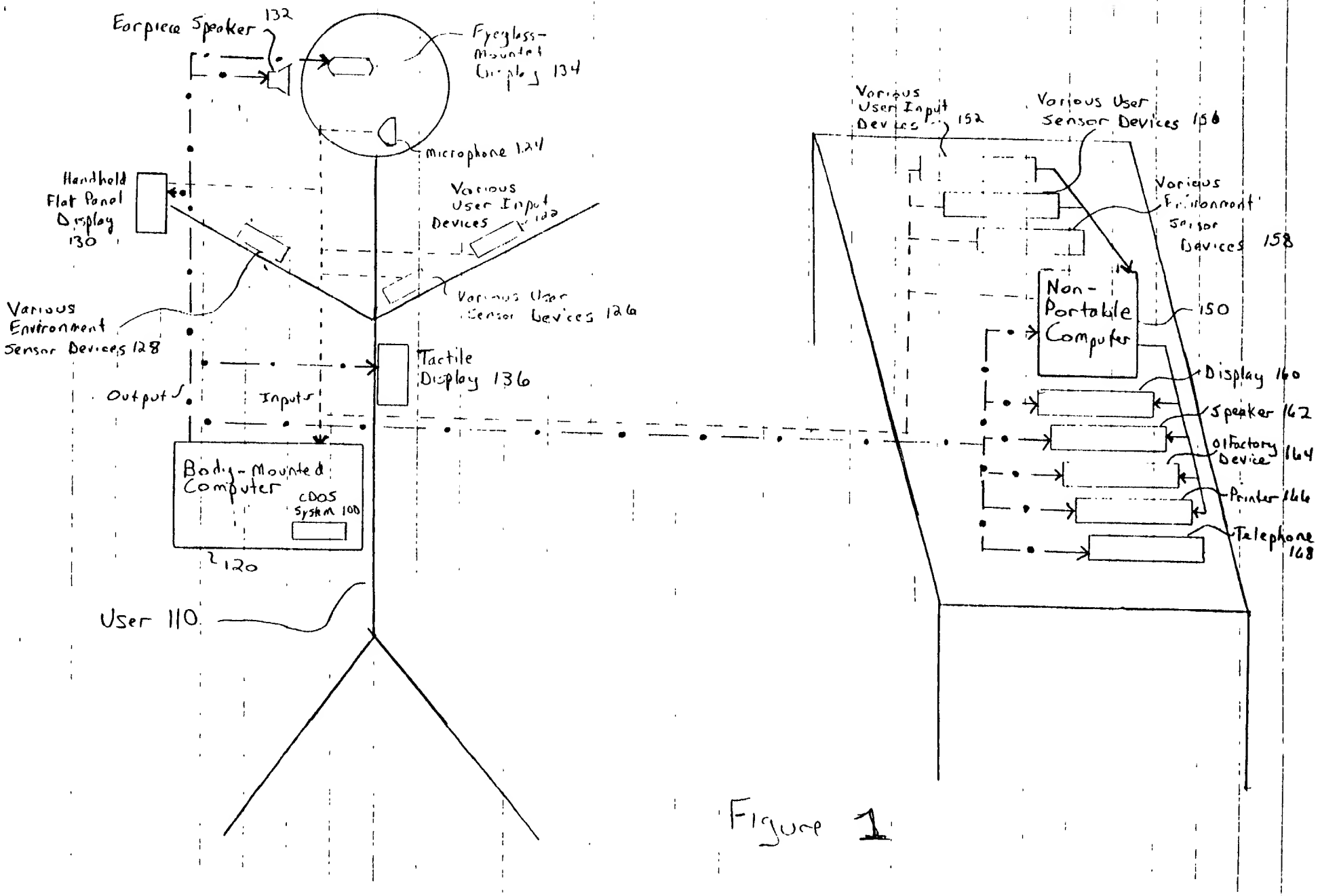
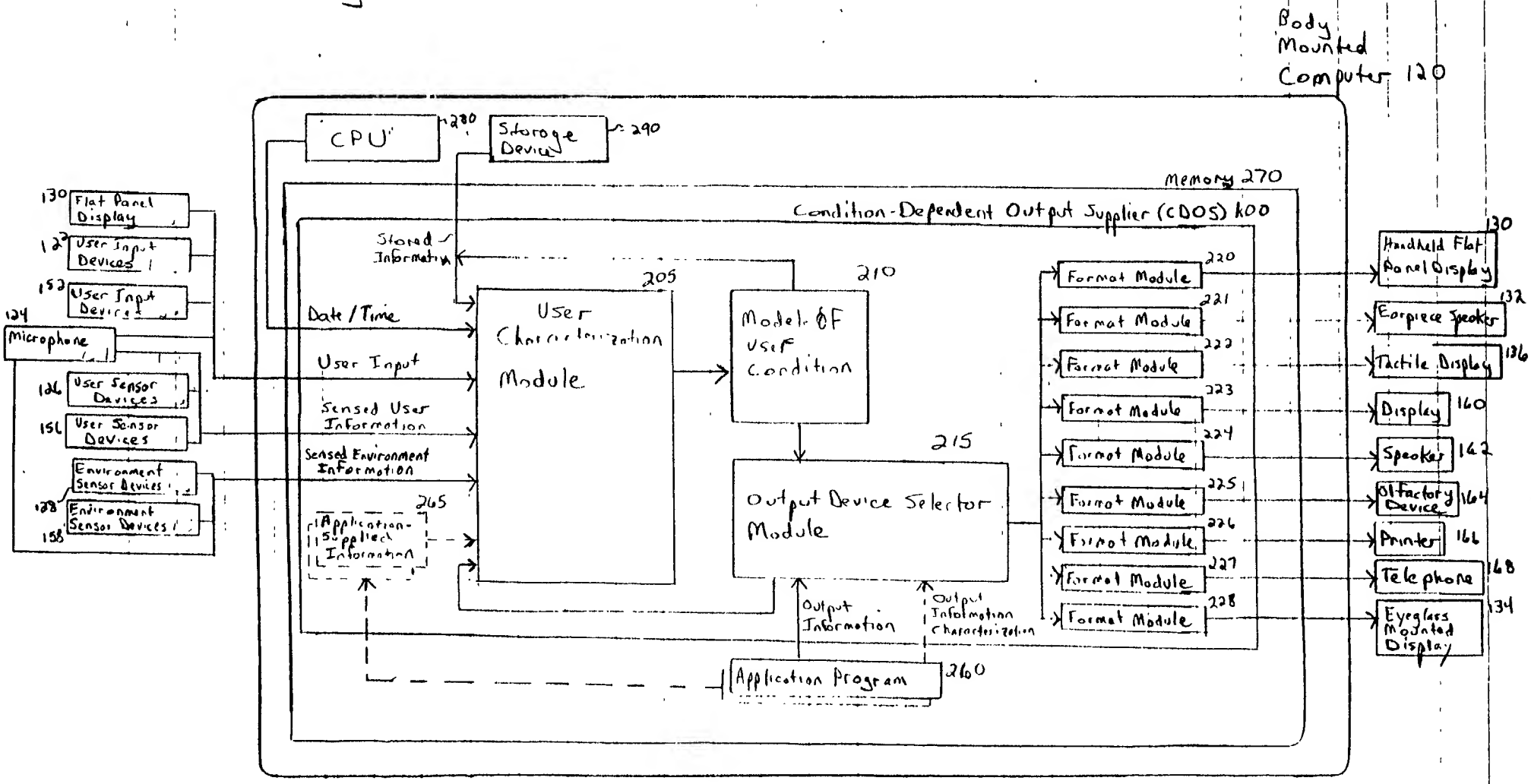

Earpiece Speaker 132
Eyeglass-Mounted Display 134
Microphone 124
Handheld Flat Panel Display 130
Various User Input Devices 122
Various User Sensor Devices 126
Various Environment Sensor Devices 128
Tactile Display 136
Output
Input
Body-Mounted Computer
cDOS System 100
120
User 110
Various User Input Devices 152
Various User Sensor Devices 156
Various Environment Sensor Devices 158
Non-Portable Computer 150
Display 160
Speaker 162
Olfactory Device 164
Printer 166
Telephone 168

Figure 1

Figure 2


Body Mounted Computer 120
CPU
280
Storage Device
290
Memory 270
Condition-Dependent Output Supplier (CDOS) 400
Stored Information
205
User Characterization Module
210
Model Of User Condition
215
Output Device Selector Module
265
Application-Supplied Information
Date/Time
User Input
Sensed User Information
Sensed Environment Information
Output Information
Output Information Characterization
Application Program
260
Format Module
220
Format Module
221
Format Module
222
Format Module
223
Format Module
224
Format Module
225
Format Module
226
Format Module
227
Format Module
228
130 Flat Panel Display
132 User Input Devices
152 User Input Devices
124 Microphone
126 User Sensor Devices
154 User Sensor Devices
Environment Sensor Devices
128
Environment Sensor Devices
158
130 Handheld Flat Panel Display
132 Earpiece Speaker
136 Tactile Display
160 Display
162 Speaker
164 Olfactory Device
166 Printer
168 Telephone
134 Eyeglass Mounted Display

Model of User Condition 310

User: X Time: 14:22 Date: 10/15/XX

Latitude	37°55.3'N	
Longitude	95°24.7'W	
Altitude	102'	
Heart Rate	57 beats/minute	
Blood Pressure	125 / 80	
Last User Input	Voice Command "Stop Recording"	
Ambient Temperature	67° F	
Ambient Noise	20 dB	
Location	Office	
Speed	2 MPH	+/- 10%
Nearby Objects	Desk	
Nearby People	Physical: None, Audio: "Doug Smith"	
User Activity	Talking On Cell Phone, Walking	Highly Likely
Cognitive Load	77	
Level Of Privacy	Company, Executive	
Scope Of Audience	Self	
Application X-Factor 1	Normal: Mean -23, Std Dev 3	
User Format Preference	Visual > Auditory	
User Device Preference	Eyeglass Mounted Display	

Fig. 3

User Characterization Module 205

User: X

IF <Latitude> ≈ "37°55.2'N" AND <Longitude> ≈ "95°24.7'W" THEN <Location> = "Office"

IF <Infrared.Link.To.Desktop> = True THEN <Nearby Objects> Includes "Desk"

IF <Voice.Recognition.ID> <> "X" AND <Speakerphone.Status> = "Disabled"
THEN <Nearby People> Includes ValueOf <Voice.Recognition.ID>

IF <Desktop.Motion.Sensor.Human.Movement> = True AND <User Activity>
Includes "Seated" THEN <Nearby People.Physical> Includes "Unidentified Person"

IF <User Activity> = "Walking" THEN <Cognitive Load> = 20

IF <User Activity> = "Talking *" THEN <Cognitive Load> = 55

IF <User Activity> Includes "Walking" AND <User Activity> Includes
"Talking On Cell Phone" THEN <Cognitive Load> = 77

WHILE <Output.To.User> = True THEN <Cognitive Load> = +10

WHILE <User.Mood> Includes "Angry" THEN <Cognitive Load> = +20%

IF <Nearby People.*> Includes Only [Company Executives] THEN
<Level Of Privacy> Includes "Executive"

IF <Nearby People.*> Includes Only [Company Employees] THEN
<Level Of Privacy> Includes "Company"

IF <Nearby People.Physical> = "None" THEN <Scope Of Audience> = "Self"

IF <Output.Intrusive.To.Others> >= "Likely" THEN <Scope Of Audience> = "Self"

AppX: IF <Application X-Factor 1.Mean> > 25 THEN
<Application X Output> = "Undesired" WITH Likelihood "Likely"

IF (<Current.Time> - <Time.Of.Last.User.Input>) > 5 minutes THEN <Interacting.With.Computer>
= False WITH Likelihood "Somewhat Likely"

•
•
•

Fig 4

Output Device Selector Module 215

User: X

Device	Currently Available	In Use	Supported Senses	Cognitive Load	Level Of Privacy	Scope Of Audience	Degree of Interruptibility	Degree Of Intrusiveness On Others
Handheld Flat Panel Display 130	X		Visual, Audio	Very Low - Medium	All	Self [+ 3]	Low	Very Low
Earpiece Speaker 132	X	X	Audio	Very Low - Somewhat High	All	Self	Low - Very High	Very Low
Eyeglass Mounted Display 134	X		Visual	Very Low - Somewhat High	All	Self	Medium - High	Very Low
Tactile Display 136	X		Tactile	Very Low - Very High	All	Self	Very low - Very High	Very Low
Display 160	X		Visual	Very low - Somewhat High	Business, Sensitive	self + 6	Low - Medium	Very Low - Medium
Speaker 162	X		Audio	Low - Somewhat High	Business	Many	Medium - High	Low - Very High
Olfactory Device 164	X		Olfactory	Medium - Somewhat High	Close Friends	Many	Very Low - Somewhat Low	Medium - Very High
Printer 166	X		Visual	Very Low - Very High	Business	Unlimited	Very Low	Somewhat High
Telephone 168	X		Audio	Very Low - Medium	Family	Self	High - Very High	High Very High
Pager 502			Visual, Audio, Tactile	Very Low - High	All	Self	High	Medium - Very High
Cellular Telephone 504			Audio	Very Low - Medium	Highly Sensitive	Self	Medium - High	High - Very High
Car Radio 506			Audio	Low - Somewhat High	Sensitive	Self + Few	Low - High	High
⋮								

Fig. 5

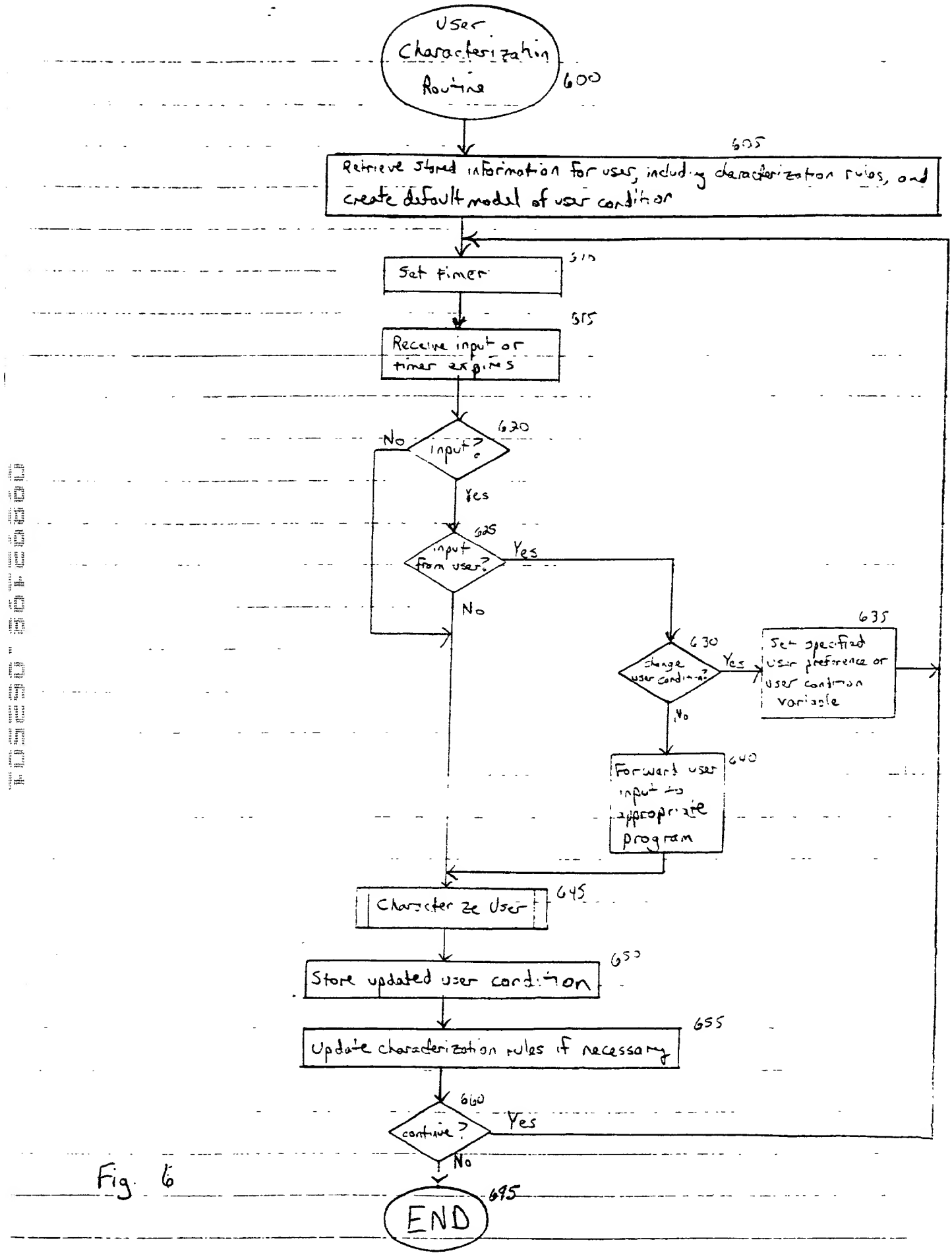
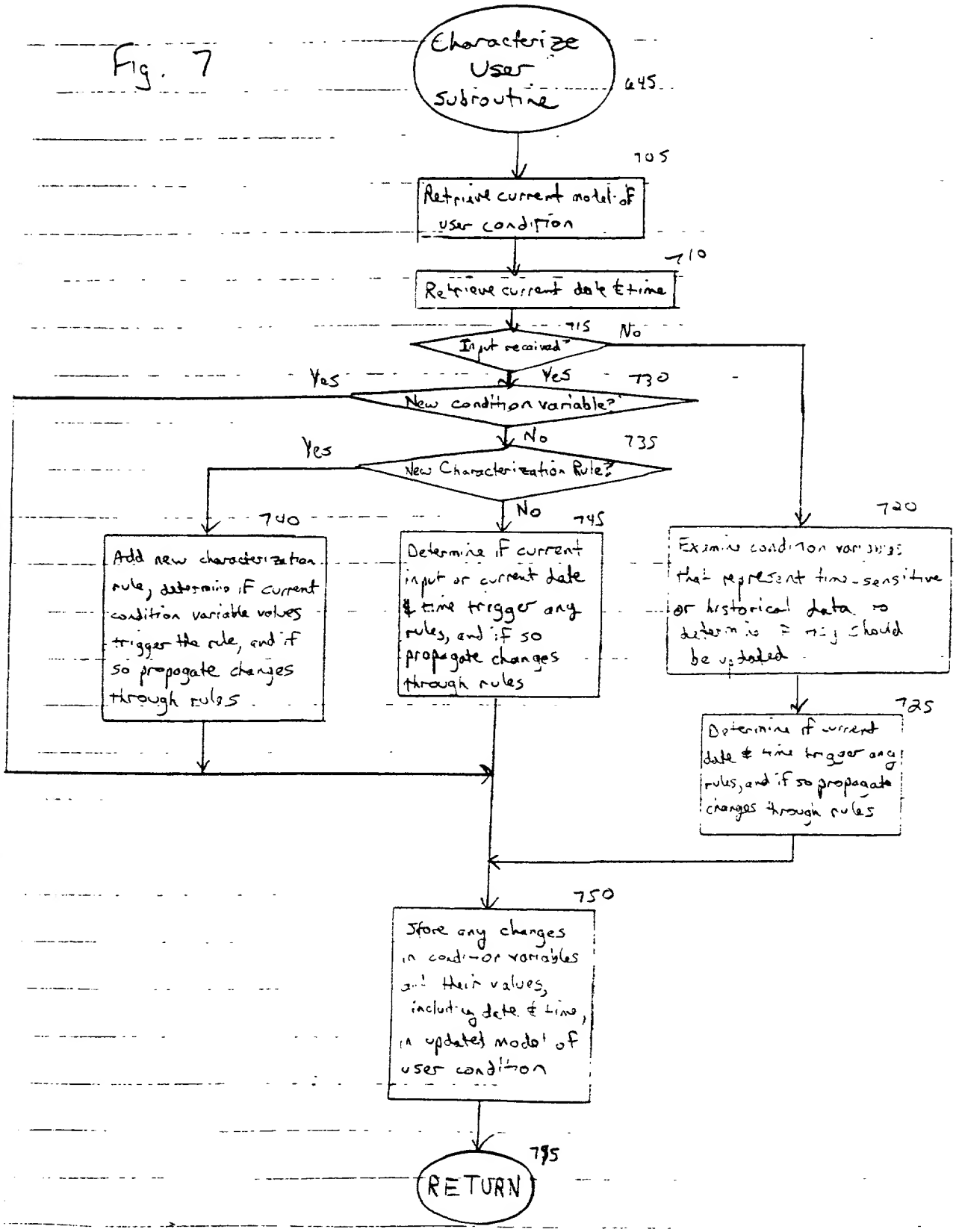

User Characterization Routine
600
Retrieve stored information for user, including characterization rules, and create default model of user condition
605
Set timer
610
Receive input or timer expires
615
No
Input?
620
Yes
Input from user?
625
Yes
No
Change user condition?
630
Yes
Set specified user preference or user condition variable
635
No
Forward user input to appropriate program
640
Characterize User
645
Store updated user condition
650
Update characterization rules if necessary
655
Continue?
660
Yes
No
END
695

Fig. 6

Fig. 7


Characterize User Subroutine
645
705
Retrieve current model of user condition
710
Retrieve current date & time
715
Input received?
No
Yes
730
New condition variable?
Yes
No
735
New Characterization Rule?
Yes
No
740
Add new characterization rule, determine if current condition variable values trigger the rule, and if so propagate changes through rules
745
Determine if current input or current date & time trigger any rules, and if so propagate changes through rules
720
Examine condition variables that represent time-sensitive or historical data to determine if any should be updated
725
Determine if current date & time trigger any rules, and if so propagate changes through rules
750
Store any changes in condition variables and their values, including date & time, in updated model of user condition
795
RETURN

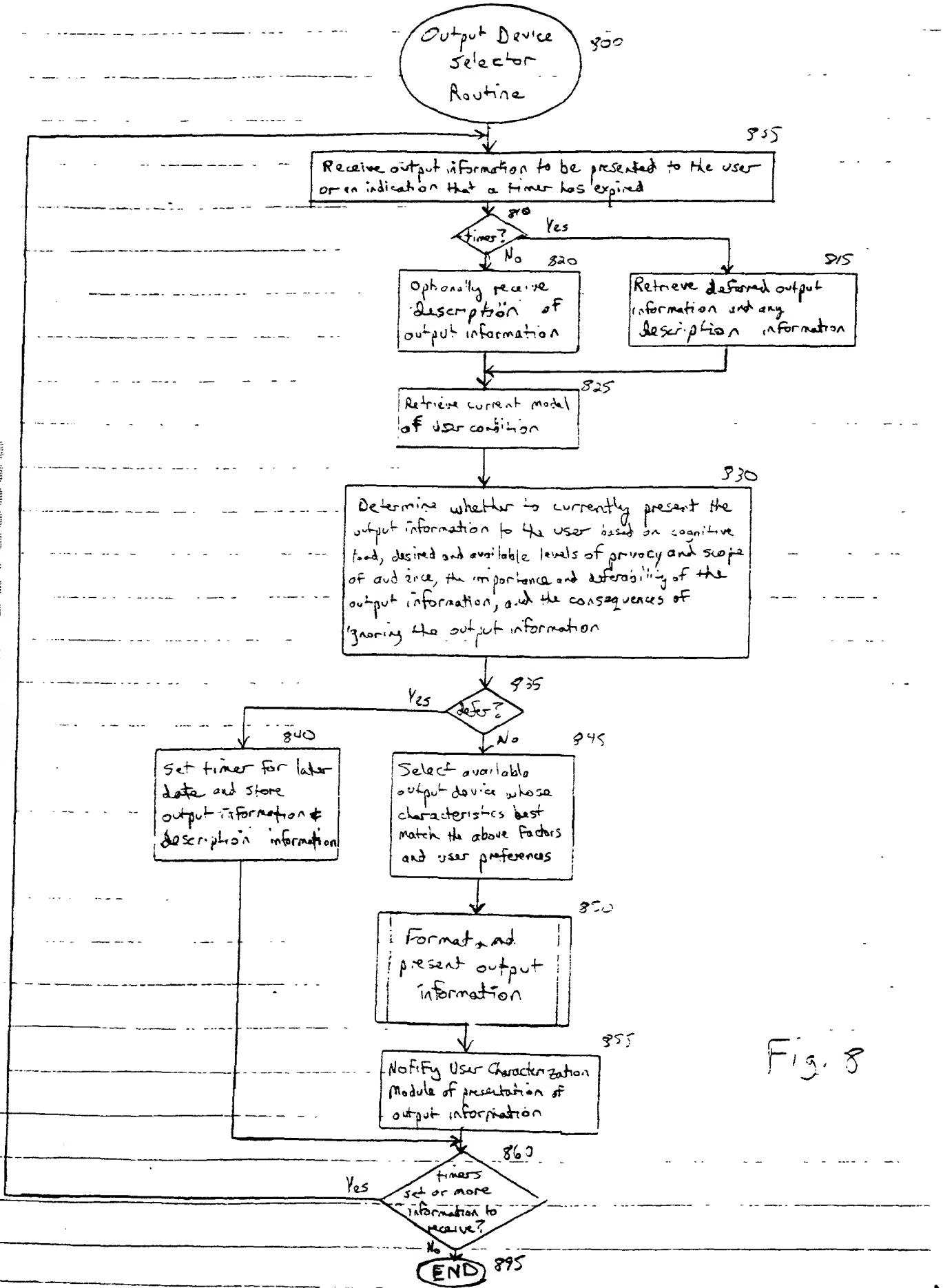

Output Device Selector Routine
800
805
Receive output information to be presented to the user or an indication that a timer has expired
810
timer?
Yes
No
820
Optionally receive description of output information
815
Retrieve deferred output information and any description information
825
Retrieve current model of user condition
830
Determine whether to currently present the output information to the user based on cognitive load, desired and available levels of privacy and scope of audience, the importance and deferrability of the output information, and the consequences of ignoring the output information
835
defer?
Yes
No
840
Set timer for later date and store output information & description information
845
Select available output device whose characteristics best match the above factors and user preferences
850
Format and present output information
855
Notify User Characterization Module of presentation of output information
860
timers set or more information to receive?
Yes
No
END
895

Fig. 8

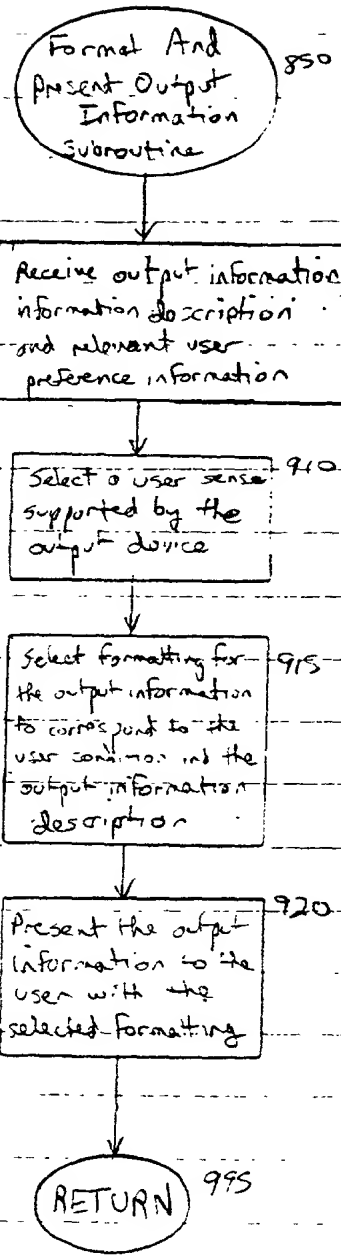

Format And Present Output Information Subroutine
850
Receive output information, information description and relevant user preference information
905
Select a user sense supported by the output device
910
Select formatting for the output information to correspond to the user sense and the output information description
915
Present the output information to the user with the selected formatting
920
RETURN
995

Fig. 9